REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claim 1 has been amended to overcome the objection thereto, and claims 18 and 19 have been newly added. Support for these amendments and new claims is provided at least in Figs. 2-4D and the specification on pages 3, 4, 22, and 23. The amendments were not presented earlier due to the unforeseeability of the comments presented in the Final Rejection. Accordingly, entry and consideration of these amended and new claims pursuant to 37 CFR 1.116 is respectfully requested.

Claims 1 and 2 were rejected, under 35 USC §102(e) as being anticipated by Kato (US 6,732,345). Claim 1 was additionally rejected, under 35 USC §102(e) as being anticipated by Umemura et al. (US 6,884,637). To the extent these rejections may be deemed applicable to the amended and new claims, the Applicants respectfully traverse based on the points set forth below.

Claim 1 now recites detecting wire formation defects in a chip layout by checking the concentration of contact holes in the wires of the chip layout. New claim 18 defines the concentration of contact holes in the wires according to their respective total areas (e.g., concentration = {total area of contact holes}/{total

area of wires}). Claim 19 defines the concentration of contact holes in the wires according to their respective total numbers (e.g., concentration = {total number of contact holes}/{total number of wires}).

The Applicants respectfully submit that the applied references, considered alone or in combination, fail to disclose the feature of considering the concentration of contact holes in wires of a chip layout for detecting defects in the wire formation, and thus neither reference anticipates the subject matter of the present claims. Moreover, due to these individual deficiencies, even if the teachings of Kato and Uemura et al. were combined in some manner, this still would not achieve the present claimed subject matter.

By contrast to the above-noted claimed subject matter, the Applicants note that Kato merely discloses determining whether a short-run rule may be applied at particular locations of a wiring layout where the distance between wires is smallest, such as where a via cell and a wire or another via cell face each other. If so, cell information for an automatic wiring process is generated that reduces the distance between the wires at each location to a minimum without violating the short-run rule. For applying the short-run rule, the side length V of the via cells, the margin M, the wire width W, the maximum value SL of the

distance between wires, the minimum distance S between wires, and the wire pitch are considered. However, Kato does not consider the subject matter of concentration of contact holes in wires of a chip layout and does not consider this concentration for the purpose of detecting defects in the wire formation, as recited in claim 1. Kato also does not consider the feature of a total area or total number concentration of contact holes in wires, as recited in new claims 18 and 19.

The Applicants note that Umemura discloses applying a voltage across a semiconductor wafer having upper-layer wiring portions and lower-layer wiring portions and an insulating layer therebetween. Measurements of a current flowing through a contact chain in an inspection region of the wafer are compared to standard current characteristics to determine whether a defect exists in the inspection region. However, Umemura does not consider the feature of concentration of contact holes in wires of a chip layout and does not consider this concentration for the purpose of detecting defects in the wire formation, as recited in claim 1. Additionally, Umemura does not consider the feature of a total area or total number concentration of contact holes in wires, as recited in claims 18 and 19.

Accordingly, the Applicants respectfully submit that neither Kato nor Umemura anticipate the subject matter defined by claims

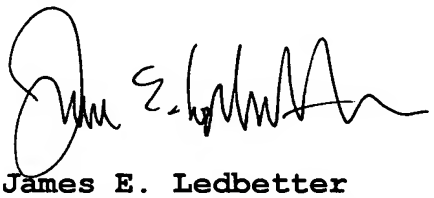
1, 18, and 19. Further, due to the individual deficiencies of Kat oand Uemura et al., even if their teachings were combined, they still would not achieve or render obvious the present claimed subject matter.

Therefore, the Applicants submit that allowance of claims 1, 18, and 19 and dependent claim 2 is warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,



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